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Magnetic phase diagram of $Ce_3Pd_{20}Ge_6$ under uniaxial pressure

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$Ce_3Pd_{20}Ge_6$ crystallizes into the cubic C_6Cr_{23}-type structure and exhibits two successive transitions, i.e., quadrupolar order at 1.5 K($T_{\rm Q}$) and antiferromagnetic(AFM) order at 0.75 K($T_{\rm N}$). The uniaxial compression lowers the symmetry of the crystal and thereby is expected to change effectively the properties associated with the quadrupolar order. We report an anomalous change of the magnetic phase diagram of $Ce_3Pd_{20}Ge_6$ under uniaxial pressure. The magnetic field and the uniaxial compression up to 3 kbar were applied parallel to the [001] direction. We found a new quadrupolar phase in the lowest field region and the transition field to the higher field phase increases considerably with uniaxial pressure, for example, from about 0.5 T at 1 bar to about 4 T at 3 kbar. The magnetic phase diagram in the AFM phase changes considerably and becomes very complex with increasing pressure. One of the phase boundaries in the AFM phase moves up concomitantly with the phase boundary in the quadrupolar phase indicating that the magnetic structure in the AFM phase is closely correlated with the quadrupolar order. On the other hand $T_{\rm N}$ only slightly decreases and $T_{\rm Q}$ does not change within experimental error, although $T_{\rm Q}$ at higher fields decreases considerably with pressure and the decrease rate is larger for higher field. The origin of this behavior will be discussed comparing the magnetic phase diagram of CeB_6 under uniaxial pressure.